

Now, a rejection is presented which rejects the present invention over the disclosure in WO 97/14980. However, it will be noted that WO 97/14980 corresponds to Application PCT/GB96/02542. This PCT Application corresponds to U.S. Patent 6,225,806 which has already been shown to totally lack any teaching of the present invention. That is, the Double Patenting rejection has been withdrawn as recognizing that U.S. Patent 6,225,806 does not disclose or in any way anticipate the present invention. More specifically, the present invention adds the previously unknown and unique feature of varying the direction of the seismic signal. This is nowhere to be found in Applicant's prior Patent 6,225,806, nor in counterpart WO 97/14980.

With respect to the detailed paragraphs of the present rejection, neither the Abstract, nor any portion of WO 97/14980 supports the allegations of the present Office Action. Regarding Claim 25, for example, there is no teaching of "adjusting" the "spatial distribution of the outgoing seismic signal", whatsoever. Where does the Examiner find such words? At the time of the invention in WO 97/14980, Applicants had invented the method described in the Abstract, but they had no concept of adjusting the direction of the outgoing seismic signal. Note: The repeated citations in the rejection to lines 10 - 13 of the Abstract totally confuse the outgoing

seismic signal, which is directionally varied only in the present invention, with

Line 10: "(6) so that signals are
received from substantially all
radial directions."

These are the received electrokinetic signals. They come into the detector and are generated by the outgoing seismic signals. It is the latter which are directionally varied, but only in the present invention. There is absolutely no teaching in Applicants' prior Patent 6,225,806 or in its WO counterpart of such directional control of the outgoing seismic signal.

For the foregoing reasons, it will be apparent that none of the citations of the Abstract or the other cited lines from WO 97/14980 in any way anticipate the express and clear language of Claims 25 - 48 of the present Application. Accordingly, allowance of the present Application is believed to be clearly in order and is earnestly solicited.

Lastly, and for the record on Appeal, Applicant submits Appendix A with this response. Appendix A is a copy of the REMARKS portion of the previous Amendment. All of the statements, arguments and truths stated therein relative to

Applicant's prior Patent 6,225,806 are hereby repeated with respect to counterpart WO 97/14980.

Respectfully submitted,

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downhole which propagates outwards from the borehole to produce electrokinetic signals which are detected within the borehole and used to measure the properties of the surrounding rock. In this application the seismic pulse radiates outwards in all directions and this has been found to give superior results to uni-directional propagation of the seismic pulse as described in U.S. Patent 4,427,944.

REMARKS

The sole ground of rejection in this Application is alleged double patenting. The first page of Applicant's Specification is presented for the convenience of the Examiner in order to point out the totally new invention described and claimed for the first time in this Application.

"According to the invention there is provided a method for measuring the properties of a formation traversed by a borehole in which a directional seismic or sonic signal is generated downhole and is propagated into the surrounding formation and an electrokinetic signal generated by the seismic or sonic signal is detected by detecting means and in which the spatial distribution of the outgoing seismic signal is adjusted so that the electrokinetic signals are generated from different zones around the source.

- APPENDIX

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The seismic signal is generated by the generation of a seismic or sonic shock downhole which propagates a seismic signal into the surrounding rock.

The distribution of the seismic signal can be varied in three dimensions so that it can be varied azimuthally with respect to source of the seismic shock in the borehole and can be rotated radially about a circle with the source at the centre of the circle, or by a combination of these two modes the distribution of the seismic signal can be varied in any direction.

The direction of the seismic signal can be varied mechanically by physically turning the source, for example a substantially uni-directional seismic source can be rotated so the direction of the seismic signal is rotated and it can be moved so that the direction of the seismic signal moves up and down. Alternatively the seismic signal can be propagated omnidirectionally and a shield with an aperture or "window" can be positioned around the source so that the seismic signal propagates through the window; moving the location of the window e.g. by rotating the shield will cause the direction of the seismic signal to change.

Preferably the direction of the seismic signal is changed by

wave interference or wave interaction of two or more sources acting together to produced a seismic signal which is focused in a particular direction or location so that, by varying the frequency, amplitude and/or phases of the sources of the seismic shock the spatial distribution, direction and location of the outgoing seismic signal can be changed."

NO ASPECT OF THIS NEW DISCOVERY AND INVENTION REGARDING THE VARIABLE DISTRIBUTION OF THE SEISMIC SIGNAL IS DISCLOSED IN APPLICANT'S PRIOR PATENT 6,225,806. These new discoveries are only presented in this new Application.

These new discoveries are not in any way claimed in Applicant's prior patent. Moreover, if Applicant had attempted to introduce such subject matter in the claims of the prior case, the Examiner would have soundly boxed Applicant's Counsel as being totally unsupported New Matter, and such position would have been entirely correct.

With respect to the legal requirements for a rejection on double patenting, such a rejection must be on a claim-by-claim basis. That is, the issue is whether any claim sought in the present Application constitutes a re-claiming of any claim in a prior Application or Patent.¹

(¹Wholesale summaries of claims in the Application and prior patent does not meet the required test for double patenting.)

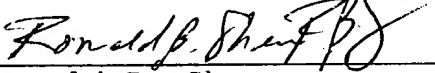
In the present case, a review of each claim of the present Application versus each claim of Applicant's prior Patent clearly shows that the present claims, each of which is directed to the new discovery, are not in any way disclosed in, nor obvious from the claims and disclosure in the apparent prior patent. To the contrary, each of the claims in this Application is directed to the adjustment of the electrokenic signal to different zones, or the seismic signal is varied in three dimensions azimuthally, or the seismic shock is rotated radially about circle, or the other recitations regarding method of changing the direction of the seismic signal. This is a totally new invention, and the claims in this Application are specific to the new invention and in no way attempt to re-claim the entirely separate, prior invention claimed in the prior Patent.

Lastly, with all due respect, reference must be made to the last paragraph on page 2 of the Office Action. The recitation that "it would have obvious-- to have used the method described in U.S. Patent No. 6,225,806--" is not all understood. Used the prior method where? By whom? What does this statement have to do with double patenting? It does not address the test for double patenting as explained above.

As stated above, the test for double patenting is not "obviousness" as when rejecting on a reference. The test is

whether any claim in the present Application re-claims the same invention as claimed in any claim of the prior patent. The answer is clearly NO for the reason stated above. Accordingly, withdrawal of the ground of rejection is clearly in order and is earnestly requested.

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